DECUS

PROGRAM LIBRARY

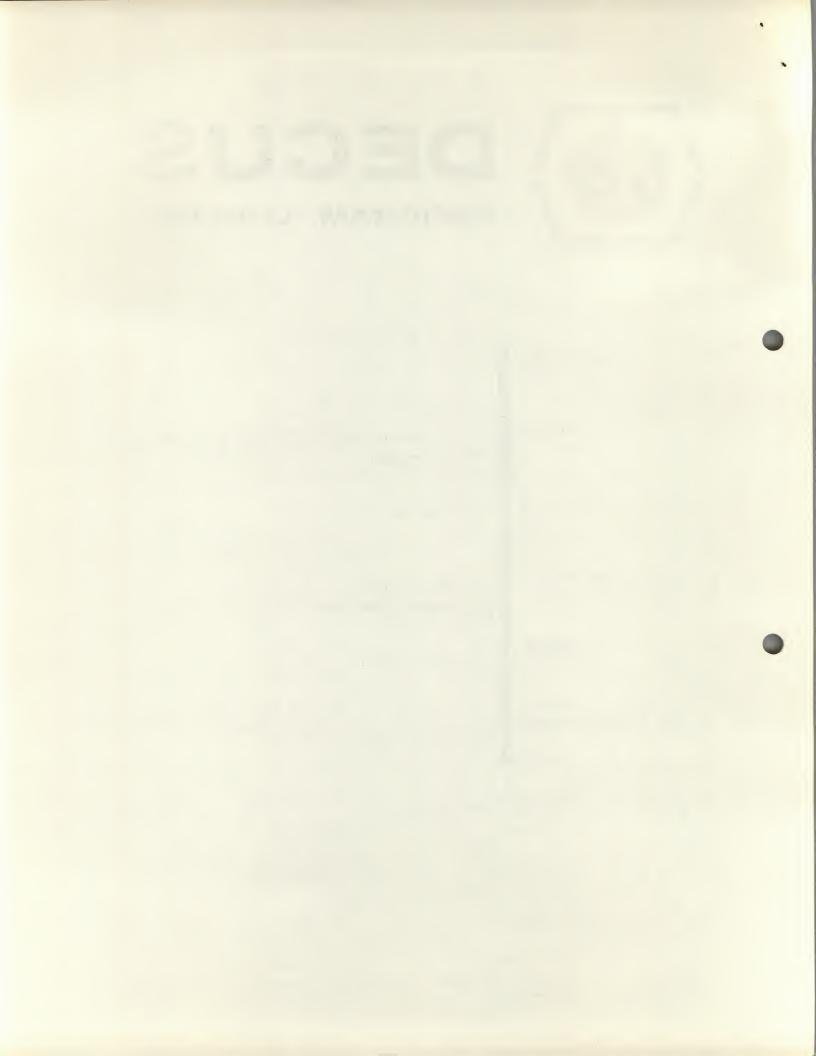|	
DECUS NO.	8-185
TITLE	Modifications to Symbolic Editor and Symbolic Tape Format Generator
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DATE	January 27, 1969
SOURCE LANGUAGE	PAL III

MODIFICATIONS TO SYMBOLIC
EDITOR AND SYMBOLIC TAPE

INTRODUCTION

The program modifies Symbolic Editor. The changes (1) facilitate use of the Editor in conjunction with DECtape or LINCtape backing store; (2) facilitate editing of tapes containing sections of leader/trailer code.

OPERATION

The binary tape is read in over Symbolic Editor (DEC-08-ESAB of August 1967). If the modified program is filed by DECtape or LINCtape LIBRARY, the starting address is 200 and it occupies core locations 0 to 1577.

FACILITIES CHANGED

1. A command B, "print buffer point" has been added. This causes the octal number of the last location in the buffer occupied by the program to be printed on the Teletype.

2. A command Q↙ , "return to LIBRARY" has been added. This transfers control to location 7600, the start of the DECtape or LINCtape LIBRARY system.

3. The "buffer full" location has been set at 7560.

4. The character 200, leader/trailer code, is input and output as a normal character.

5. The commands T↙ and F↙ output 200 codes instead of blank tape.

6. All three punching instructions, T↙ , F↙ , and P↙ , halt before output occurs, to enable the operator to turn the punch on.

7. The command T↙ outputs about 6 inches of 200 code and then halts again.

8. The command F↙ outputs form feed followed by 3 inches of leader/trailer.

9. The command G↙ , "Get tag", has been omitted.

B and Q↙ facilitate storing of source language programs on magnetic tape. The procedure is: strike B to print out the last location used in the buffer, say nnnn; then Q↙ to start LIBRARY. Type UPDATE; in answer to the successive queries output by UPDATE, type: - a name for the program, (it is the writer's practice to prefix E to the normal title of the program, if necessary shortened to 5 characters, to designate programs stored in this way); 177 for the starting address; and core locations <0,nnnn>;. The program is stored together with the Editor.

To reenter the program: type ESCAPE if nnnn exceeds 5777, or if the binary loader is required in the last page of core; enter 177 in switches, press LOAD ADD and then START; or recall the program by typing its name.

The modifications to the routines associated with T↙ , F↙ and P↙ enable leader/trailer sections of tape to be preserved or generated at editing. This is particularly valuable when a number of such sections occur on a tape, for example separating extensive comments from program to be compiled, or separating blocks of data. The original Editor loses these sections when the tape is input, and reinserting them at the time of punching the edited tape is awkward. Note that a final section of leader/trailer must be terminated by carriage return followed by form feed. (The final carriage return/line feed does not emerge beyond the punch at output).

MODIFICATION TO SYMBOLIC TAPE FORMAT GENERATOR

INTRODUCTION

This produces an acceptable format with fewer spaces than are output in the format produced by the standard program Digital 8-21.

OPERATION

The binary tape is read in over Digital 8-21. If filed on magnetic tape, update with SA-0200 and occupies core locations 0 - 777.

FACILITIES CHANGED

1.   Normal lines of program text are indented 2 spaces from the margin, instead of 10.

2.   Text after tags begins 8 characters from the margin.

3.   Comments on program lines begine 24 characters from the margin.

A symbolic program in this format is virtually as easy to read as one in the standard format. The total number of characters, however, is much less, particularly if comment on program lines is used sparingly. This leads to a valuable saving of editor buffer space, and, if only low-speed reading and punching equipment is available, of time also.

```
/ MODIFICATIONS TO SYMBOLIC EDITOR

/ G. R. HERVEY    31/5/69

/ TO INPUT AND OUTPUT 200 CODE AS CHARACTER
/ AND OUTPUT 200 CODE AS TRAILER.
/ HALTS AFTER T AND F COMMAND AS WELL AS P
/ AND ON COMPLETION OF T.
/ COMMAND G REPLACED BY Q:  RETURN TO LIBRARY.
/ NEW COMMAND B:  PRINT LAST BUFFER LOCATION.
/ BUFFER EXTENDED TO 7560.

/ LOAD OVER SYMBOLIC EDITOR [DEC-08-ESAB]:
/ UPDATE WITH S. A. 200, CORE <0,1577>.


M77=3
C260=16
TE1=20
C200=20
CCR=24
CLF=25
C240=30
OUTL1=73
LOW=73
BUFR=114
VAL=117
ARG2=121
CHAR=122
BOX=123
CNT=124
OPS2=371
UT1=521
PRNT=1017
XYZ=1030
I33=1140
LEAD=1227
TSTOUT=1236
```

```
                    *200

0200    1073        TAD LOW

                    *1

0001    7560        7560

                    *22

0022    1213   DEINST, TADCON

                    *52

0052    1050        CHIN

                    *54

0054    1051        CHIN+1

                    *60

0060    1052        INPAT

                    *265

0265    0770        LIST2-1
0266    7400        OPS2-LIST2

                    *304

0304    1356        BUFOUT

                    *405

0405    7600        7600

                    *526

0526    7200        CLA
0527    5321        JMP UT1
0530    7602   LEAD2, CLA HLT
0531    1003        TAD M77
0532    4735        JMS I LEADI
0533    7602        CLA HLT
0534    5420        JMP I TE1
0535    1227   LEADI,  LEAD

                    *576

0576    1051        CHIN+1
```

4

```
                    *771

    0771   0306    LIST2,   306
    0772   0301       301
    0773   0311       311
    0774   0303       303
    0775   0313       313
    0776   0304       304
    0777   0314       314
    1000   0316       316
    1001   0320       320
    1002   0322       322
    1003   0324       324
    1004   0315       315
    1005   0321       321
    1006   0323       323

    1007   7000    CON2,    -1000
    1010   7700       -100
    1011   7770       -10
    1012   7777       -1

                    CON=1013
                    TADCON=TAD CON
                    TADCN2=TAD CON2

                    *1023

    1023   1247    TAD ADDR
    1024   3233    DCA XYZ+3

                    *1031

    1031   7100    CLL
    1032   1117    TAD VAL
    1033   7402    HLT
    1034   7430    SZL
    1035   5227    JMP XYZ-1
    1036   7200    CLA
    1037   1123    TAD BOX
    1040   1016    TAD C260
    1041   4473    JMS I OUTL1
    1042   2233    ISZ XYZ+3
    1043   2124    ISZ CNT
    1044   5225    JMP XYZ-3
    1045   5646    JMP I .+1
    1046   1366    PRCON

    1047   1213    ADDR,    TADCON

    1050   0000    CHIN,    0
    1051   3122       DCA CHAR
    1052   4340    INPAT,   JMS I33
    1053   7450       SNA
    1054   5251       JMP CHIN+1
```

5

```
                    *1057

1057    5650        JMP I CHIN

                    *1115

1115    1030        TAD C240

                    *1210

1210    0302        302

                    *1220

1220    7602  FORM,    CLA HLT
1221    4236  FORMN,   JMS TSTOUT

                    *1230

1230    3236        DCA TSTOUT
1231    1020        TAD C200

                    *1234

1234    5231        JMP .-3

                    *1264

1264    5665        JMP I .+1
1265    0530        LEAD2

                    *1301

1301    5221        JMP FORMN
```

```
                    *1356

1356    1114    BUFOUT, TAD BUFR
1357    3121       DCA ARG2
1360    1375       TAD OCINST
1361    3776       DCA I ADDRI
1362    1030       TAD C240
1363    4473       JMS I OUTL1
1364    5765       JMP I .+1
1365    1017       PRNT

1366    1022    PRCON,  TAD DEINST
1367    3776       DCA I ADDRI
1370    1024       TAD CCR
1371    4473       JMS I OUTL1
1372    1025       TAD CLF
1373    4473       JMS I OUTL1
1374    5420       JMP I TE1

1375    1207    OCINST, TADCN2
1376    1047    ADDRI,  ADDR

                    *1462

1462    1030       TAD C240
```

```
ADDR      1047
ADDRI     1376
ARG2      0121
BOX       0123
BUFOUT    1356
BUFR      0114
CCR       0024
CHAR      0122
CHIN      1050
CLF       0025
CNT       0124
CON       1013
CON2      1007
C200      0020
C240      0030
C260      0016
DEINST    0022
FORM      1220
FORMN     1221
INPAT     1052
I33       1140
LEAD      1227
LEADI     0535
LEAD2     0530
LIST2     0771
LOW       0073
M77       0003
OCINST    1375
OPS2      0371
OUTL1     0073
PRCON     1366
PRNT      1017
TADCN2    1207
TADCON    1213
TE1       0020
TSTOUT    1236
UT1       0521
VAL       0117
XYZ       1030
```